



VIDEO

FAQ

Q Video compression is mentioned a lot, but what is it and how does it work?

A Video requires very large files for even modest amounts of footage. An uncompressed video clip in 16-bit colour at 640x480 resolution and 30 frames per second (fps) would amount to over 1GB per minute. This is completely unmanageable, especially given that a whole movie has to fit on a 7.4GB two-layer DVD. For this reason, all the digital video you watch is compressed.

One key method of compression is to store some frames in their entirety, and for the rest just store the differences between the frames. For example, when a newsreader talks to camera the background is mainly still. There is no point in repeating the data for the still background for every single frame, so it's discarded.

Other compression techniques involve the reduction of data within an individual frame. This can be achieved by storing just the differences between adjacent pixels, so identically coloured pixels are stored for free. Also, the compression can remove subtle differences in colour that the human eye cannot easily perceive. Most compression has an impact on visual quality, though, and compression artefacts are visible in badly compressed video. As a frame is built from the frame before it, errors on a disc or in transmission break up the picture and you can usually see this as squares of different colours.

A video codec is a specific method for compressing and then decompressing video. The most common example is the MPEG2 codec, which is used for a variety of purposes, including digital television broadcasts and DVD. However, more efficient compression codecs are now available. The main successor to MPEG2 is MPEG4. Variations of this are used in many popular file types, including DivX.

All this compression and decompression happens behind the scenes. If you want to compress files yourself for posting online, visit www.virtualdub.org. The codecs themselves are installed on your PC separately and can be found on the web. Try www.siggraph.org/education/materials/hypergraph/video/codecs/default.htm.

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▲ Some data in the video remains the same from frame to frame and so is perfect for compression, such as the background in this shot

REVIEW MEDIA PLAYER

ACER
MG3001-p Media
Gateway

RATING ★★★★★

PRICE £159 inc VAT

SUPPLIER Acer 08708 531005

DETAILS www.acer.co.uk



If you have invested in an HD TV, or are about to do so after reading this month's *Labs* on page 175, the MG3001-p Media Gateway could be a useful addition to your living room. It allows you to stream media files from your PC to your TV, including HD content.

The silver casing is attractive, and at the same size as a DVD player it should fit easily beneath your TV. On the front is an LCD that tells you which file is playing. Beneath a flap lies a USB2 port, to which you can attach a camera or flash drive.

The back of the unit has all the connections you need. Standard TV owners are well provided for with composite, S-video and RGB SCART. There is also a component output, which supports 720p or 1080i for HD TV owners. Audio outputs are plentiful, with optical and coaxial S/PDIFs and stereo phono. Networking is provided by a 10/100 Ethernet port and a 802.11g wireless capability.

Setting up the device on your network is simple. It found our wireless network immediately, but couldn't connect because there was no WPA support. So if you have a WPA network, you must revert to the less-secure, harder-to-configure WEP to get this device working. The wider availability of players with WPA support is long overdue.

We found the PC software confusing at first, but eventually managed to share the necessary folders. It has some advantages, including the ability to set up individual users with their own set of

folders. The device is UPnP compatible, so it will work with Windows Media Connect, TwonkyVision and other popular streaming software.

The TV interface works well enough, with files divided into audio, photos and video. There is also a simple setup wizard and a well laid-out Options menu. However, it is marred by annoying 'lifestyle' stock photos of people taking photos and listening to music. The unit does not support DRM-protected WMA files from sites such as Napster.

The quality of video and audio playback is high, and our test files played well without any unusual scaling artefacts. We had some problems with lip syncing on a couple of files, but we couldn't pin these down to a particular file format. Photos looked bad even in HD resolutions and the scaling created jagged edges on smooth lines.

This device is similar to Pinnacle's Showcenter 200 and has a better menu system, but there are too many drawbacks. Once the lip syncing and DRM issues are resolved, it could be excellent. For now, we recommend the ShowCenter 200 instead.

Seth Barton

✓ Lots of outputs; simple onscreen interface

✗ Lip-syncing issues on some video files

SPECIFICATIONS SCART, component, S-video, composite, stereo phono, coaxial S/PDIF and optical S/PDIF outputs, USB2, 100Mbit/s network, wireless 802.11g. **Part code** AX.Z0101.001

HOTLIST TV TUNER

FRECOM
DVB-T USB Stick

PRICE CUT

RATING ★★★★★

PRICE £43 inc VAT

SUPPLIER www.dabs.com

DETAILS www.freecom.com

This is the smallest USB digital TV tuner

we've ever seen and it's very easy to install. The software's interface isn't brilliant, but it's sufficient for watching or recording the odd show.

For notebook owners who want to watch the occasional programme, it's ideal. It is cheap and the picture quality is good, although you may need a rooftop aerial, depending on the DVB reception in your area.

SPECIFICATIONS RF input, MPEG2 capture format, USB Hi-Speed interface



HOTLIST HARD DISK CAMERA

JVC
GZ-MG20

BEST BUY
★
COMPUTER SHOPPER

RATING ★★★★★

PRICE £467 inc VAT

SUPPLIER www.novatech.co.uk,
08701 120612

DETAILS www.jvc.co.uk

The GZ-MG20 has a built-in 20GB hard disk, which will store a massive nine hours of video on its normal quality setting. You can browse thumbnails on the LCD screen for instant playback, and transfer video to your computer by simply dragging and dropping files. The rest of the device feels like a standard MiniDV camcorder. It's ideal for the occasional camcorder user.

SPECIFICATIONS Hard disk camcorder, 20GB storage, 1/4" CCD, 25x optical zoom, USB Hi-Speed interface. **Part code** GZ-MG20U



REVIEW TV TUNER**COMPRO
VideoMate DVB-T200**

RATING ★★★★★

PRICE £40 inc VAT

SUPPLIER www.scan.co.uk, 08707 554747DETAILS www.comprousa.com

Digital TV is continuing to grow in popularity and content. Some regions of the UK will soon rely on it, as the analogue signal is being phased out from 2008. Consequently, digital TV cards are now appearing in all shapes and sizes. Compro's VideoMate DVB-T200 is an internal PCI card.

Installation is marginally harder than most TV cards due to the extra features it supports. Fortunately the manual is helpful and takes you through this process. Once the card is safely nestled in a spare PCI slot, you have to connect it up to the power switch pins on the motherboard. This enables the card to turn the computer on and off.

Compro's software is easy to install, but it consists of lots of different programs, including TV, DVD and photo applications, not all of which are necessary. The TV software led us automatically to the channel scan function, which found all the expected Freeview channels. Image quality isn't an issue here and we spotted no excessive artefacts, while noise was at a minimum.

The options menu is comprehensive and well laid out. You can even adjust the brightness and contrast on a channel-by-channel basis. We took this opportunity to reduce the garish shades of the shopping channels to more manageable tones. You can also set the aspect ratio of your monitor and adjust the time-shift buffer for live TV.

The Electronic Programme Guide (EPG) isn't bad, but you can only view programmes from one multiplex – a small set of channels that are broadcast together – at a time. We've seen better



examples, such as CyberLink's PowerCinema 4, where you can see a whole evening's viewing laid out on one screen.

Scheduling also comes with lots of options, such as repeat recording. It is enhanced by the option to power up the PC to record, which means you won't have to leave your system on all the time. Unfortunately, the quirky EPG means it may take a while to find the programme you want. The EPG and options aren't designed for use with the remote and we were forced to revert back to the mouse to use them.

This is a good piece of hardware that is let down by disappointing software. Hopefully Compro will soon implement an EPG system similar to Sky+. Until then, we'd recommend the straightforward Freecom featured in our Hotlist on page 38, or Nebula Electronics' DigiTV products if you're after more advanced features.

Seth Barton

 Power-on feature; decent image quality

 Poor EPG; remote control doesn't operate all features

SPECIFICATIONS RF, IR, line-in, composite and S-video inputs, MPEG2 capture format, PCI interface. **Part code** VideoMate DVB-T200

HOTLIST PORTABLE DVD PLAYER**MUSTEK
PL510**

RATING ★★★★★

PRICE £230 inc VAT

SUPPLIER www.meggydogcomputers.co.ukDETAILS www.mustek.com

With a large 10" screen, Mustek's PL510 portable DVD player is a joy to watch and it still fits comfortably in your lap. It supports Dolby Digital stereo, so listening to movies using headphones is an enjoyable experience.

Battery life is an acceptable two-and-a-half hours, which will let you watch all but the longest films. Unfortunately it lacks DivX playback for home video encoders.

SPECIFICATIONS 10" LCD, 2½ hours' playback, multi-region DVD, SD/MMC card reader. **Part code** PL510

**HOTLIST STREAMING MEDIA PLAYER****PINNACLE
ShowCenter 200**

RATING ★★★★★

PRICE £162 inc VAT

SUPPLIER www.savastore.comDETAILS www.pinnaclesys.com

The ShowCenter 200 streams media files from your PC to your living room using Microsoft's Windows Media Connect software. It supports all the most common photo, audio and video file types and is easy to install. Its wired and wireless connections mean it will fit into any home network, too. Best media player on the market.

SPECIFICATIONS 1.5GHz PC required with Windows XP with SP1 and 256MB RAM; SCART, component, S-video, and composite video outputs, two stereo phono, optical and coaxial S/PDIF audio outputs, USB, 100Mbit/s network, wireless 802.11g

**CHOOSING A...****DV
CAMERA****Step-by-step guide to buying the ideal digital video camera**

1 If you just want to make home movies, a £250 digital video (DV) camera with the specs shown below will be fine. A range of auto-exposure modes will ensure you get decent results in all conditions. The LCD screen provides easy playback on location, while the remote allows for comfortable viewing on the sofa. If you'll be using the zoom a lot, concentrate on the optical zoom spec, as the digital zoom's effective range depends on this.

2 To edit video, get a model with DV-in. You can transfer edited footage back to MiniDV tape and run off VHS copies via the camera's S-video out. Cameras with S-video in can often be used to capture analogue video.

3 Enthusiasts will pay for a more flexible camera. Good manual focus and colour viewfinder mean better camerawork, an external microphone transforms your audio, and good battery and charger options keep you filming for longer. A high-resolution CCD might improve video quality, but while this and a flash memory slot will make your DV camera double as a digital camera, quality will be basic.

4 Miniature DV cameras, especially those using tiny MicroMV tapes, may tempt gadget-lovers, but picture quality may be compromised. Cameras that replace tape with a hard disk are more useful, making your footage more manageable.

5 If you're serious about film-making, £1,500 buys you a DV camera with superb optics, three CCDs and the requisite connectors to attach equally expensive professional AV accessories.

FILL IN YOUR SPECS HERE

(Recommended minimum in grey)

CCD: 400,000 pixels**ZOOM:** 10x optical/300x digital**VIDEO PORTS:** FireWire out, S-video out**MONITORING:** Mono viewfinder, 2.5" colour LCD**MEDIA:** MiniDV tape**STILLS CAPTURE:** 640x480 to tape**EXTRAS:** Remote control